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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/584,764	05/30/2000	Bunsen Y. Wong	MM0011	1163

7590 07/16/2002

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EXAMINER	
RICKMAN, HOLLY C	
ART UNIT	PAPER NUMBER
1773	6

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/584,764	WONG ET AL.	
	Examiner	Art Unit	
	Holly Rickman	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. The objection to claims 9 and 16-18 are withdrawn in view of Applicant's amendments.

Specification

2. The substitute specification filed 4/25/02 has not been entered because it does not conform to 37 CFR 1.125(b) because: there is no statement on the record that the substitute specification includes no new matter.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-50 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The originally filed disclosure is not enabling for the limitation directed to a coercivity of the two magnetic layers being between the coercivity of the individual layers as set forth in claims 1, 11, 20, 21, 31, and 41. The Examiner concedes that the first and second magnetic layers necessarily have a first and second coercivity, respectively. However, there is no

indication in the original disclosure that the coercivity of the medium is between the coercivities of the individual magnetic layers.

Furthermore, there is no support for the limitation of claim 21 requiring that the magnetic remanence of the first magnetic layer is not equal to the magnetic remanence of the second magnetic layer. There is also no support for the limitation in claim 39 requiring that the magnetic remanence of the first magnetic layer is equal to the magnetic remanence of the second layer. The specification teaches that the ratio Q can be varied while keeping remanence constant as shown in Figs. 4-7. However, the fact that the remanence *of the medium* is constant does not have any bearing on whether the remanence of the individual magnetic layers are equal.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The rejection of claims 1,11, 13, 18, and 20 under 35 U.S.C. 102(b) as being anticipated by Song et al. (IEEE Trans. Magn., Vol. 30, No. 6, pp. 4011-13, November 1994) is withdrawn in view of Applicant's amendments. The claims as newly amended require a first magnetic layer in direct contact with a second magnetic layer. Song et al. require the presence of a Cr flash interlayer between the first and second magnetic layers. There is no motivation to remove this layer since to do so would destroy the teachings of the reference.

7. Claims 1-3, 8-9, 11-13, 18, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang (US 5772857).

Zhang discloses a method of making a magnetic recording medium by sequentially sputtering a Cr underlayer on a substrate of a material such as NiP-plated Al and a first and second magnetic layer on the Cr underlayer. The reference teaches that the coercivity of the medium is between the coercivities of the individual magnetic layers (col. 2, lines 16-22, col. 2, line 65 to col. 3, line 8; col. 4, lines 21-34). Zhang teaches that the coercivity of the medium varies according to the thickness ratio of the upper magnetic layer to the lower magnetic layer (col. 3, lines 65-67)

Claim Rejections - 35 USC § 102/103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The rejection of claims 1-3, 8-13 and 18-20 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chen et al. (US 5763071) is withdrawn in view of Applicant's amendments. Chen et al. fail to teach or suggest a medium wherein the coercivity of a dual magnetic layer is between the coercivites of the individual layers.

10. Claims 31 and 40 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zhang (US 5772857).

Zhang discloses a magnetic recording medium including an underlayer deposited on a substrate and a first and second magnetic layer on the underlayer. The reference teaches that the coercivity of the medium is between the coercivities of the individual magnetic layers (col. 2, line 65 to col. 3, line 8). Zhang teaches that the coercivity of the medium varies according to the thickness ratio of the upper magnetic layer to the lower magnetic layer (col. 3, lines 65-67)

The reference does not specifically disclose the temperature and substrate bias used during sputtering of the two magnetic layers. However, the limitations relating to the sputtering conditions are process limitations in an article claim. It has been held that even though product-by-process claims are limited and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Claim Rejections - 35 USC § 103

11. The rejection of claims 2-3, 6, 8-9, 12, and 16 under 35 U.S.C. 103(a) as being unpatentable over Song et al. (IEEE Trans. Magn., Vol. 30, No. 6, pp. 4011-13, November 1994) is withdrawn in view of Applicant's amendments.

12. The rejection of claims 1-5, 7-9, 11-15, 17-18 and 20 under 35 U.S.C. 103(a) as being unpatentable over Carey et al. (US 6280813) is withdrawn in view of Applicant's amendments. Carey et al. teach a recording medium having two magnetic layers separated by an intermediate layer. The presence of the intermediate layer is critical to the formation of antiferromagnetically coupled magnetic layers and therefore, it would not have been obvious to remove it from the recording medium.

13. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 5772857) in view of Zhang (US 5858566).

Zhang '857 teaches all of the limitations of the claim, as set forth in paragraph no. 7 above, except for the presence of a seedlayer, a C overcoat and a lubricant layer.

Zhang '566 teaches a magnetic recording medium having a substrate, a seedlayer, an underlayer formed from Cr, and a Co-based magnetic layer. The reference teaches that the use of a seedlayer such as NiAl beneath a Cr underlayer and a Co-based magnetic layer increases coercivity and lowers media noise (see abstract). The reference also teaches that it is known in the art to apply a layer of a C overcoat and a lubricant layer thereon in order to enhance the durability of the disk (col. 2, lines 27-36).

It would have been obvious to one of ordinary skill in the art at the time of invention to add a seedlayer, a carbon overcoat and a lubricant layer to the recording medium taught by Zhang '857 in order to lower media noise and increase durability of the medium as suggested by Zhang '566.

Response to Arguments

14. Applicant's arguments filed 4/23/02 have been considered but are moot in view of the new grounds of rejection.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (703) 305-2642. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Holly Rickman
Examiner
Art Unit 1773

hcr
July 11, 2002